rather fine axial threads, becoming finer behind the aperture; suture narrowly canaliculate, its lower edge finely denticulate; last whorl decidedly solute, free about one-fifth of its length; aperture almost regularly oval, vertical when viewed from its outer edge, oblique when viewed from the front; outer lip heavy, rounded and well reflexed; inner lip narrower, scarcely reflexed above; base within the umbilical region with faint spiral liræ; color brownish white, marked with brown spots arranged in longitudinal and revolving series.

Operculum paucispiral, finely ridged, calcareous without, horny within; nucleus excentric.

Length 25, greatest diameter 14, least diameter 11 mm. Length of aperture 10, diameter 7 mm.

Another shell. Length 21, greatest diameter 13, least diameter 7 mm. Length of aperture 9, diameter 6 mm.

Found on a high limestone hill back of Thomazeau, Haiti, many specimens, living and dead.

This species is somewhat closely related to *Chondropoma weinlandi* Pfeiffer, which is found on the plain about Thomazeau, but it is larger, solider, more finely developed and painted, and has the last whorl much more solute and the outer lip more solid and reflexed. It varies a good deal in size and color pattern. There are occasionally faint longitudinal brown bands, and the darker spots which are usually longest in a spiral direction may become angular, rounded or almost blunted into axial rows.

It is a magnificent species, often quite as beautiful as *C. magnificum.*

SOME NOTES ON THE NORTH AMERICAN CALYCULINÆ, WITH NEW SPECIES.

BY DR. V. STERKI.

The genus Calyculina has been pointed out by T. Prime[1] without a name, and named by Clessin.[2] It seems well-defined, since no species have been seen which were in doubt whether to be ranged under Sphærium or Calyculina.

---

[1] Mon. Corbiculidæ, 1865, p, iv.

[2] Mal. Bl. xix., 1870, p. 150, and used in "Cycladeen," p. 253.

One of the features, however, considered characteristic, and from which the generic name was derived, is not constant. The beaks are not always capped, or calyculate, and in *C. transversa*, *e. g.*, they are simply rounded, as a rule, while in all other species, examples with rounded, not calyculate, beaks, are occasionally found, and sometimes at a large percentage. As stated elsewhere, it seems that this is caused, at least partly, by the seasons during which propagation is effected.

It has been asserted, and repeated, that the Calyculinæ have a cyclical period of life, within one year, depositing their young in spring. This seems not to hold good. Of *Cal. transversa* Say, *e. g.*, I have collected specimens at all stages of growth, and also gravid animals in all seasons, also in midwinter, and nearly the same can be said of *C. partumeia*, *truncata* and *securis*. And among materials sent for examination from different places and collected at various seasons, the mussels were found of different ages and sizes.

Since the publications of T. Prime and Clessin, little has been said about our Calyculinæ. During the last eight years I had chances to examine many thousands of specimens, owing to the efforts and the kindness of a number of conchologists. Yet the materials extant are still insufficient, especially from the Southern and Western States. Most of the species seem to be rather variable, and some considerably so, in regard to size, shape, surface appearance and color, and some forms could be referred to certain species only after careful examination and often repeated comparison, and even then doubtfully in some instances. More materials from many localities are very desirable.

They preferably inhabit quiet waters, to which they are best adapted, with their thin and fragile shells. Pools, ponds, ditches, slow rivers and creeks often abound with them, where they are crawling among plants and dead leaves. In fast running streams, with coarse bottoms, they are scarce, and so along the shores of larger lakes.

So far as I know them now, the species are the following:

1. *C. elevata* Hald. A southern species, with comparatively strong shells. The specimens are not always so high and of such circular outlines as in T. Prime's figure. A rather small, but well inflated form from Kansas sems to range under this species.

2. *C. contracta* Pr. Seems to be a good species. Seen from

Alabama and Louisiana. Specimens from Kentucky (Bowling Green, collected by Miss Price) are slightly different in shape, being more rhomboid, but probably range with *contracta*.

3. *C. hodgsonii* n. Somewhat like *contracta*, but rather larger, somewhat more elongated; the shell is thicker, the nacre whitish, the hinge stronger; the posterior end is not so markedly or so obliquely truncated. The surface is rather dull, the color a vivid yellow, to plumbeous around the umbones, in older specimsns. It has some resemblance with *C. transversa*, but is less elongated, more equipartite, the shell and hinge are stouter, the superior margin and the hinge more curved, especially so the posterior lateral teeth.

Size: long. 14, alt. 11. diam. 6.5 mill.

From a mill pond at Albion, Ill., collected years ago by Mr. C. S. Hodgson. It is in many collections under various names, *e. g.*, *Sphaerium aureum* Pr., from which it is very different. So well marked a form must be described and named, even if known from only one place, so far, and even if it should ultimately prove to be a variety, *e. g.*, of *C. contracta*, which, however, is not probable. I take pleasure in naming it after its discoverer, Mr. Hodgson.

4. *C. transversa* Say. Widely distributed and common in all kinds of waters. Fairly constant in shape, but rather variable as to size and color.

5. *C. ferrissii* n. sp. Shell elongated, equipartite, rather well inflated, beaks in the middle, narrow, moderately prominent, somewhat inclined forward, slightly or not calyculate; superior margin curved, sloping from the beaks anteriorly and posteriorly; scutum and scutellum slight but distinct, long and narrow; inferior margin well and regularly curved; anterior and posterior part rounded, without any angles, the former somewhat less high; surface with some irregular, not sharp, but partly rather deep striæ, more or less arranged in zones, polished; color plumbeous around the beaks, with broad light yellow zones along the margins; shell thin, hinge fine, plate quite narrow, teeth thin and slight, the laterals placed at angles with the longitudinal axis, rather long; ligament fine and very long.

Size: long. 13, alt. 10, diam. 7 mill.

Hab.: Oklahoma City, Oklahoma, Arkansas, Frierson, Louisiana; in the former States collected by Mr. Jas. H. Ferriss, in whose honor the species is named, in the latter by Mr. L. S. Frierson.

So far as known, the present Calyculina is decidedly distinct, and

moreover, was found in company with *C. transversa*, which it resembles in being so elongated. But its beaks are not anterior, narrower and less full, the hinge margin is not so straight, and the anterior and posterior ends are rounded, not truncate.

6. *C. partumeia* Say. Widely distributed and decidedly variable, some forms being hardly recognizable. At Garrettsville, Ohio, Mr. Streator has found a form with exceptionally broad, full, rounded beaks, quite unlike those of a Calyculina.

7. *C. jayensis* Pr. (Sphaerium jayanum, in Mon. Corb.). One of the rarer species, and known from Indiana and Michigan to Wisconsin and Iowa. Seems to be valid.

8. *C. truncata* Linsley. Rather common, and somewhat variable. In regard to shape and surface appearance, it usually resembles more *C. partumeia* than *securis*. Yet in some forms the posterior end is rather obliquely truncated, and the beaks are rather strongly inclined towards the anterior. The mussel is more inflated, as a rule, than the dimensions given in Prime's description.

Clessin (Cycladeen, p. 246) says: "It appears to me somewhat doubtful whether *C. truncata* can be regarded as a good species. Around the type of Cal. *securis* are grouped several species (*Sph. contractum*, *rosaceum*, *sphaericum*, *truncatum*, *lenticula*), which, according to European principles, would unhesitatingly be regarded as varieties." In all probability, Clessin had insufficient materials on hand.[1] *C. truncata* has been collected in many places over a wide territory, and has been found distinct. Quite commonly, I have found *C. securis* and *truncata* associated, and the two often also with *C. partumeia*. *C. contracta* is evidently of another type. As to *rosacea* and *sphærica* we refer to the following.

9. *C. rosacea* Pr. There is a small Calyculina with a thin, transparent, horn-colored, or almost colorless shell, narrow, moderately high beaks, which is evidently distinct from the other species. It is known from different places in Michigan, Illinois, New York and Virginia. For years it has been a stumbling block, since most forms did not agree exactly with Prime's description of *rosacea*, and yet they could not well be ranged under any other species. After all, it seems that they are *rosacea*.

[1] As directly evident from some of his descriptions and notes. *E. g.*, he says in the description of *C. securis*: "shell shining," which is rather an exception than the rule. Some of his descriptions were made from single specimens, as he states.

10. *C. securis* Pr. Widely distributed, common, and quite variable in size, shape, surface sculpture and color. The shell is more or less inflated; the beaks are more or less prominent, broader or narrower, often not calyculate, but simply rounded; the posterior end is more or less truncate, the disproportion between the anterior and posterior parts various; the surface of the shell is usually dull or even rough from fine scales of the epiconch, but sometimes smooth or even glassy. The color varies from brown to a vivid yellow or orange (*crocea* Lewis).

11. *C. sphærica* Anth. I have seen no authentic specimens and no Calyculinæ from the original place, and consequently am unable to judge about it. It appears to be very near *securis*, also from some Michigan specimens received as *sphærica*.

12. *C. rykolti* Normand. From Traverse City and from Straits Lake, Michigan, Mr. Bryant Walker has sent specimens of a Calyculina, which so closely resemble *C. rykolti* from Germany and Sweden that they can hardly be regarded as distinct. More materials may bring additional evidence.

Larger specimens (of the size given as typical by Clessin) from Saguache, Colorado, were in the collection of the late Dr. James Lewis, now in possession of Mr. Bryant Walker. The agree with *C. rykolti*, but must also be compared with the following:

13. *C. raymondi* Cooper. The specimens I have from Washington (Spokane, Mrs. Olney, and Seattle, Mr. Randolph), are evidently not mature. They have much resemblance with *C. rykolti*, and it would be of special interest to know whether such forms also inhabit eastern Asia.

14. *C. deformis* Carpenter. My specimens are from Rhode Island and New Jersey, not authentic but probably true. Whether this Calyculina is a good species, or a form of *securis*, as has been asserted, I am unable to decide, for the present. At any rate, it is a remarkable form, seems to be distinct.

15. *C. lacustris* Mull. (?). To Mrs. M. Olney I am indebted for a few specimens from the Spokane river, Washington, which can in no way be distinguished from *C. lacustris*, from several European countries. They appear absolutely identical. More specimens from other places would be very welcome.

Of *C. subtranversa* Pr., *lenticula* Gld., and *tenue* Pr., I have no materials. Under the first name, *C. transversa* from Texas have been sent out.